Conclusion: The 4.6% of local recurrence rate of PMRT cohort registered from 2005 to 2013 was lower than 13.1% (12/92) of non-PMRT cohort registered from 1990 to 2000.

EP-1165

Impact of nodal status on clinical outcome of breast cancer patients: a monoinstitutional experience

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Purpose or Objective: The aim of our study was to determine the impact of nodal status and other prognostic factors on clinical outcome of patients with breast cancer treated with surgery and adjuvant radiotherapy.

Material and Methods: A total of 774 breast cancer patients treated between 2001 and 2013 were retrospectively analyzed. Qualitative and quantitative characteristics were summarized as frequencies and percentages, average and standard deviations. The rates of Overall Survival (OS), disease free survival (DFS), and loco-regional recurrence (LR) were calculated at 36 and 60 months with the Kaplan-Meier method. Multivariate analysis was also performed and a p value of 0.05 was considered statistically significant.

Results: We identified 774 patients treated with adjuvant RT of which 595 patients (75.4%) without nodal involvement (pN0), 118 (14.9%) pN1-3 and 61 (7.75%) with more than 3 positive lymph nodes (pN>3). In our sample, supra-clavicular region was irradiated in 62 patients (13 pN>3, 17 pN1-3, 32 pN0). Median follow-up was 36 months (range 1-144 months). There were 14 cases of LR, of which 13 in pN0 and 1 in pN1-3 patients. A total of 31 patients developed distant metastases (48.4% in pN0, 19.4% in pN1-3, 32.2% in pN>3 group). The mortality rate was of 2.8% (68.1% pN0, 18.2% pN1-3 and 13.6% pN>3). There were no statistically significant differences in terms of OS, DFS and MFS among the three treatment groups. Multivariate analysis showed that clinical outcomes were significantly correlated with margin status (p-value: 0.00), T-stage (p-value: 0.053), Her2-neu gene amplification (p-value: 0.00), Ki-67 (p-value: 0.00) and SCRT (p-value:0.00). Variables such as age, surgery, ER and PgR expression and grading, were not significant.

Conclusion: In our study we observed higher rates of events in pN0 and pN1-3 patients, but none statistically significance was demonstrated between pN0, pN1-3 and pN>3 in terms of OS, DFS and MFS. Furthermore pN0 was in this experience the bigger group and this certainly influenced statistical analysis. In breast cancer, nodal status plays a key role both in the prognostic evaluation and in the therapeutic choice, and the clinical outcome of patients pN1-3 is comparable to pN>3 patients; so in this group (pN1-3) it is also necessary the evaluation of other prognostic factors such as receptor status, Ki 67 and surgical margins. Nodal status alone seems incapable to really guide treatment choice, with particular regard to the SCRT appropriateness.

EP-1166

Management of chest wall irradiation in patients with breast reconstruction

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Purpose or Objective: The aim of this study was to evaluate treatment related complications and patient satisfaction in women with locally advanced breast cancer who received post-mastectomy radiation therapy after breast reconstruction.

Material and Methods: Between 2009 and 2014, 65 patients, median age 48 years, with locally advanced breast cancer who underwent mastectomy with breast reconstruction in the same time, received post-mastectomy radiation therapy. Two patients received excision of local recurrence, 46 patients nipple sparing mastectomy, 10 skin sparing mastectomy and 7 modified radical mastectomy. Post-mastectomy radiation therapy was delivered to the chest wall with a dose of 50 Gy in 25 fractions over 5 weeks (57 with 3Dconformal RT and 8 with tomotherapy).

Results: A patient interrupted radiation therapy to 20 Gy for severe acute toxicity with rejection of implants (delayed removal of the prosthesis). Acute dermal toxicity G2 for erythema, telangiectasia (1 patient) and edema was relieved in 26 patients, G1 toxicity in 36 patients, G0 in 2 patients and G3 in 1 patient. Two patients in systemic progression were not considered for local evaluation. At median follow-up of 35 months: 43 patients presented late toxicity G1 due to hyperpigmentation, edema, periprothetic fibrosis. 7 patients referred sense of tension or pain and not satisfaction about the final aesthetic result. Two patients presented arm lymphedema. Two patients received replacing of the implants after 36 months due to contraction, encapsulation, dislocation, swelling.

Conclusion: Radiotherapy can be safely delivered after breast reconstruction, with a low complication rate and good patient satisfaction. Further randomized studies are needed to better define the optimal management of breast reconstruction and post-mastectomy radiation therapy.

EP-1167

Radiation therapy and breast reconstruction: outcomes and complications in our experience

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Purpose or Objective: The impact of adjuvant therapy on the surgical outcomes following breast reconstruction is poorly understood. The purpose of this work is to evaluate surgical outcomes following autologous and prosthetic reconstruction in the setting of post-mastectomy radiation therapy (PMRT) and adjuvant chemotherapy. We assessed the outcome and complications of irradiated patients in our department.

Material and Methods: From May 2015 to July 2015 we analyzed acute, late toxicity and cosmetic results of 76 patients with a median age of 50 ± 10 years undergoing mastectomy with immediate recostruction with prosthesis (79.7%), autologous technique (7.2%) or expander-implant (13%) following adjuvant radiotherapy. 24 patients underwent to Nac- Sparing Mastectomy, 10 of witch with periareolar pexy. 31 patients underwent to Skin reducing Mastectomy and 5 patients to Skin Sparing Mastectomy. The radiotherapy dose was 50 Gy to chest wall and supraclavicular limphnodes when indicated with 6 MV X-ray delivered with Linac (60pt), or with tomotherapy (16pt).

Results: With a median follow-up of 25±24 months utilizing RTOG toxicity scale we observed a grade I acute toxicity in 74.6% of patients, grade II in 6% of patients while in 19.4% of patients was not observed any sign of toxicity. Late toxicity was not observed in 68.7% of patients while in 28.4% of patients a grade I late toxicity was noted. No post-operative complications was observed in 62.3% of patients while in 15.9% a capsular contracture was responsible in 20.3% of patients of explantation of prosthesis. None of patients developed post-operative skin ulcers. Cosmetic results was analyzed with Harvard Scale and was excellent in 4.5% of patients, good in 32.8%, fair in 16.4% and poor in 46.3%. The chi-test showed no correlation between early or late toxicity or cosmetics results with type of surgery (p>0.1). Univariate

analysis showed no relationship between cosmetic result and age (p>0.13).

Conclusion: Our experiences is limited to a low number of cases but confirm that adjuvant radiotherapy is not controindicated when reconstructive surgery is expected. The patient must be informed about the possible radiation sequelae.

EP-1168

Phase II trial of hypofractionated VMAT treatment for early stage breast cancer: 2-years outcomes

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Purpose or Objective: To report 2-years toxicity and clinical results of hypofractionated simultaneous integrated boost (SIB) tecnique with Volumetric Modulated Arc Therapy (VMAT) as adjuvant treatment after breast-conserving surgery.

Material and Methods: Patients presenting early-stage breast cancer were enrolled in a phase II trial. Eligibility criteria: age>18 years, invasive cancer or DCIS, Stage I-II (T<3 cm and N≤3), breast-conserving surgery without oncoplastic reconstruction, any systemic therapy was allowed in neoadjuvant or adjuvant setting. All patients underwent VMAT-SIB technique to irradiate the whole breast and the tumor bed. Doses to whole breast and surgical bed were 40.5Gy and 48Gy, respectively, delivered in 15 fractions over 3 weeks. Acute and late skin toxicities were recorded based on RTOG scoring criteria and CTCAE v. 4.0, respectively. Cosmetic outcome was assessed as excellent/good or fair/poor, according to the Harvard scale.

Results: The present study focused on long-term results of a cohort of 144 patients with a minimum follow-up of 24 months (median 37, range 24-55 months). Median age was 62 y.o. (range 30-88). At one year, the highest reported skin toxicity was G1, in 14% of the patients; this data dropped to 4% at the last follow-up, after more than 2 years. Breast pain was recorded in 21.6% of the patients 6 months after treatment, while it was present in 3.5% of the patients at the last follow-up, showing a significant improvement with time. No correlation with liponecrosis as recorded from ultrasound exam, nor with dosimetric data. Skin toxicity was correlated with breast volume. No pulmonary or cardiological toxicities were recorded. After an early evaluation of clinical outcomes, only one case presented disease relapse, as liver metastases.

Conclusion: The hypofractionated VMAT-SIB course as adjuvant treatment after breast-conserving surgery showed to be safe and effective with optimal local control. This approach requires validation with long-term follow-up data.

EP-1169

The effect of escalating boost dose in breast cancer patients with involved resection margin

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Purpose or Objective: To investigate the impact of the boost dose escalation on ipsilateral breast tumor recurrence (IBTR), for breast cancer patients with involved surgical margins after breast conserving surgery.

Material and Methods: Between January 1998 and December 2010 at Asan Medical center, among 4275 breast cancer patients who were treated with breast conserving therapy (BCT), a total 192 patients were treated with boost dose over 10 Gy for involved resection margin. We retrospectively analyzed the outcomes in 192 patients who had whole breast irradiation of 50.4 Gy followed by median boost dose 15.0 Gy (range, 12 - 16 Gy) for breast cancer with involved resection margin. Surgery preceded referral for radiotherapy with a 1-2 mm margin of macroscopically normal tissue. The resection margins were evaluated by pathologist for the presence of invasive carcinoma or ductal carcinoma in situ at the inked margin. Neoadjuvant chemotherapy was done in 3 patients (1.6 %). Adjuvant chemotherapy was given in 93 patients (48.4%). 157 patients (81.8%) received systemic hormone therapy. The median age was 46 years (range, 25-73 years). 182 patients (94.8%) were stage 0 to II and 10 patients (5.2%) with stage III breast cancer were also included. The boost dose delivered with electrons or tangential fields given in daily fractions of 1.5 to 2.5 Gy. The boost volume was described as the site of the primary tumor with a margin of 1.5 cm to the field borders after breast conserving surgery.

Results: The median follow-up duration for all patients was 6.7 years. IBTR were considered as any local failures on ipsilateral breast regardless of the location. The 5-year cumulative risk of ipsilateral breast tumor recurrence as a first event was 5.4%. The 5-year local relapse free survival (LRFS) was 94.4%. IBTR occurred as a first failure in 13 of 192 patients. In boost field recurrences were found in 11 patients (85%). 5 patients (39 %) were out-of boost field failures and 3 of them were both failures. On univariate analysis, age, cell type, pT stage, pN stage, extensive intraductal component (EIC), multiplicity and location of resection margin were prognostic factor for IBTR (p <0.05). In multivariate analysis only young age (<40 years old) and positive radial resection margin were unfavorable prognostic factor for LRFS (p =0.037, p=0.021 respectively). pT stage was marginally significant prognostic factor for IBTR. (p=0.088)

Conclusion: Median boost dose of 15 Gy is comparable to historical boost research results for local control in breast cancer patients with involved resection margin after BCT. Young age (<40 years old) and positive radial resection margin rather than superficial or deep margin were important risk factors for ipsilateral breast tumor recurrence. More than 80% of local recurrences were in boost field, more boost dose escalation needs to be considered.

EP-1170

Onset of fatigue during and after radiotherapy in breast cancer patient

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Purpose or Objective: Cancer-related fatigue is one of most prevalent symptom among women submitted to radiotherapy (RT) for breast cancer (BC). Despite its prevalence the mechanism of onset is unknown still: one possible mechanism is activation of the immune system, through the mediation by proinflammatory cytokines interleukin (IL), IL1-b,, IL-6, and tumor necrosis factor-*a* (TNF-*a)* as host response to tissue damage determined by the radiant treatment. To purpose of this study was to determine the level of fatigue in a group of BC patients its relation to anxiety, depression, serum cytokines, cortisol and blood count levels

Material and Methods: Between October 2013 and May 2015 twenty-eight patients who received adjuvant RT after breast conserving surgery were studied. The patients' subjective feeling of fatigue intensity was measured according to with two standardized self-assessment instruments the Fatigue Assessment Questionnaire (FAQ) and a visual analog scale (VAS) on fatigue intensity before the start and weekly during RT, as well as 14 days and 3-6 and 12 months after RT. In addition, a differential blood cell count and the serum levels of the cytokines- IL1-b,, IL-6, and TNF-*a,* were determined in parallel to the fatigue assessments.